

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Edwin A. Suominen Art Unit: : 2745\*  
Serial No. : 10/\_\_\_\_,\_\_\_\_ Examiner: : Kincaid, L.\*  
Filing Date : August 25, 2003 \* In parent application  
Title : Simplified High Frequency Tuner and Tuning Method

---

MAIL STOP PATENT APPLICATION

Commissioner for Patents

PO Box 1450

Alexandria, Virginia 22313-1450

Express Mail Label No.: EU332760496 US

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Applicant discloses the following references, which are listed on Form PTO-1449 attached to this document. Each of these references was previously cited or submitted in at least one of the parents to this application, Serial Nos. 09/713,761; 09/317,781; and 10/032,526. Pursuant to MPEP 609, copies of the references are not included.

Please feel free to contact the undersigned if it would in any way advance prosecution of this application.

Respectfully submitted,



---

Edwin A. Suominen  
Reg. No. 43,174

Dated: August 25, 2003

LOUIS J. HOFFMAN, P.C.  
14614 North Kierland Boulevard  
Suite 300  
Scottsdale, Arizona 85254  
(480) 948-3295

List of Patents and Publications For  
Applicant's Information Disclosure  
Statement

Serial No.: 10/\_\_\_\_,\_\_\_\_

Applicant(s): Edwin A. Suominen

Group: \_\_\_\_\_

Filed: August 25, 2003

## U.S. PATENT DOCUMENTS

| Examiner<br>Initials   | Document<br>Number | Date  | Name                | Class | Subclass | § 102(e) Date* |
|--|--------------------|-------|---------------------|-------|----------|----------------|
| <i>*provided only for patents issued less than one year before applicant's earliest claimed filing date.</i> |                    |       |                     |       |          |                |
| A  | 6,073,000          | 06/02 | Shinohara           | 455   | 310      | 07/96          |
| B  | 5,974,306          | 10/99 | Hornak et al.       | 455   | 323      | 08/97          |
| C  | 5,950,119          | 09/99 | McGeehan et al.     | 455   | 302      | 09/97          |
| D  | 5,887,247          | 03/99 | Baltus et al.       | 455   | 277.2    | 11/97          |
| E  | 5,875,212          | 02/99 | Fleek et al.        | 375   | 329      | 10/94          |
| F  | 5,828,955          | 10/98 | Lipowski et al.     | 455   | 324      | 08/95          |
| G  | 5,826,180          | 10/98 | Golan               | 455   | 302      | 08/94          |
| H  | 5,815,529          | 09/98 | Wang                | 375   | 285      | 04/96          |
| I  | 5,811,972          | 09/98 | Thompson et al.     | 324   | 338      | 03/94          |
| J  | 5,809,090          | 09/98 | Buternowsky et al.  | 375   | 347      | 03/96          |
| K  | 5,802,463          | 09/98 | Zuckerman           | 455   | 208      | 08/96          |
| L  | 5,784,418          | 07/98 | Skyes et al.        | 375   | 347      | 04/95          |
| M  | 5,784,414          | 07/98 | Bruekers et al.     | 375   | 324      | 09/95          |
| N  | 5,761,615          | 06/98 | Jaffee              | 455   | 314      | 05/95          |
| O  | 5,758,274          | 05/98 | Vu et al.           | 455   | 246.1    | 03/96          |
| P  | 5,742,274          | 04/98 | Yoshida et al.      | 327   | 113      | 09/95          |
| Q  | 5,734,976          | 03/98 | Bartschi et al.     | 455   | 333      | 03/95          |
| R  | 5,715,529          | 02/98 | Kianush et al.      | 455   | 266      | 05/93          |
| S  | 5,696,796          | 12/97 | Poklemba            | 375   | 316      | 06/95          |
| T  | 5,682,099          | 10/97 | Thompson et al.     | 324   | 338      | 06/95          |
| U  | 5,640,698          | 06/97 | Shen et al.         | 455   | 323      | 06/95          |
| V  | 5,619,206          | 04/97 | Cole, Jr. et al.    | 342   | 37       | 11/95          |
| W  | 5,588,025          | 12/96 | Strolle et al.      | 375   | 316      | 03/95          |
| X  | 5,548,244          | 08/96 | Clewer              | 329   | 318      | 11/94          |
| Y  | 5,528,633          | 06/96 | Halik et al.        | 375   | 326      | 06/94          |
| Z  | 5,461,643          | 10/95 | LaRosa et al.       | 375   | 329      | 04/93          |
| AA   | 5,438,329          | 08/95 | Gastouniotis et al. | 340   | 870.02   |                |
| AB   | 5,402,449          | 03/95 | Schultes et al.     | 375   | 94       |                |
| AC   | 5,376,894          | 12/94 | Petranovich         | 329   | 306      |                |
| AD   | 5,375,146          | 12/94 | Chalmers            | 375   | 103      |                |

Examiner: \_\_\_\_\_

Date Considered: \_\_\_\_\_

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609.  
Draw line through citation if not in conformance *and* not considered. Include copy of this form with next communication to applicants.

List of Patents and Publications For  
Applicant's Information Disclosure  
Statement

Serial No.: 10/\_\_\_\_,\_\_\_\_

Applicant(s): Edwin A. Suominen

Group: \_\_\_\_\_

Filed: August 25, 2003

## U.S. PATENT DOCUMENTS

| Examiner<br>Initials   | Document<br>Number | Date  | Name                | Class | Subclass | § 102(e) Date* |
|--|--------------------|-------|---------------------|-------|----------|----------------|
| <i>*provided only for patents issued less than one year before applicant's earliest claimed filing date.</i> |                    |       |                     |       |          |                |
| AE   | 5,355,513          | 10/94 | Clarke et al.       | 455   | 20       |                |
| AF   | 5,341,107          | 08/94 | Bijker et al.       | 329   | 337      |                |
| AG   | 5,315,425          | 05/94 | Van Deventer et al. | 359   | 153      |                |
| AH   | 5,249,203          | 09/93 | Loper               | 375   | 97       |                |
| AI   | 5,230,099          | 07/93 | Loper               | 455   | 324      |                |
| AJ   | 5,214,796          | 05/93 | Gorrie et al.       | 455   | 326      |                |
| AK   | 5,142,553          | 08/92 | Rosenkranz          | 375   | 75       |                |
| AL   | 5,125,008          | 06/92 | Trawick et al.      | 375   | 349      |                |
| AM   | 5,121,070          | 06/92 | Tomita              | 329   | 304      |                |
| AN   | 5,010,399          | 04/91 | Goodman et al.      | 358   | 85       |                |
| AO   | 5,003,621          | 03/91 | Gailus              | 455   | 324      |                |
| AP   | 4,994,769          | 02/91 | Kishi               | 332   | 170      |                |
| AQ   | 4,992,736          | 02/91 | Stormont et al.     | 324   | 309      |                |
| AR   | 4,965,853          | 10/90 | Barnard             | 455   | 209      |                |
| AS   | 4,953,182          | 08/90 | Chung               | 375   | 97       |                |
| AT   | 4,944,025          | 07/90 | Gehring et al.      | 455   | 207      |                |
| AU   | 4,914,408          | 04/90 | Voorman             | 333   | 167      |                |
| AV   | 4,884,265          | 11/89 | Schroeder et al.    | 370   | 70       |                |
| AW   | 4,864,643          | 09/89 | French et al.       | 455   | 302      |                |
| AX   | 4,859,960          | 08/89 | Standford et al.    | 329   | 126      |                |
| AY   | 4,803,700          | 02/89 | Dewey et al.        | 375   | 77       |                |
| AZ   | 4,737,728          | 04/88 | Nakamura et al.     | 329   | 110      |                |
| BA   | 4,675,882          | 06/87 | Lillie et al.       | 375   | 345      |                |
| BB   | 4,584,715          | 04/86 | Baars et al.        | 455   | 302      |                |
| BC   | 4,241,451          | 12/80 | Maixner et al.      | 455   | 202      |                |
| BD   | 3,992,616          | 11/76 | Acker               | 455   | 318      |                |
| BE   | 3,961,262          | 06/76 | Gassmann            | 325   | 345      |                |

Examiner: \_\_\_\_\_

Date Considered: \_\_\_\_\_

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609.  
Draw line through citation if not in conformance *and* not considered. Include copy of this form with next  
communication to applicants.

List of Patents and Publications For  
Applicant's Information Disclosure  
Statement

Serial No.: 10/\_\_\_\_

Applicant(s): Edwin A. Suominen

Group: \_\_\_\_\_

Filed: August 25, 2003

## FOREIGN PATENT DOCUMENTS

| Examiner<br>Initials | Document<br>Number | Date  | Country | Class | Subclass | Translation<br>Yes / No |
|----------------------|--------------------|-------|---------|-------|----------|-------------------------|
| BF                   | 0 651 522 A1       | 05/95 | EPO     | H04B  | 01/26    |                         |
| BG                   | 0 351 156 B1       | 03/90 | EPO     | G01S  | 5/14     |                         |
| BH                   | 0 508 401 A2       | 04/92 | EPO     |       |          |                         |
| BI                   | 0 595 277 A1       | 10/93 | EPO     |       |          | Yes                     |
| BJ                   | 0 602 394 A2       | 11/93 | EPO     |       |          |                         |
| BK                   | WO 94/10756        | 05/94 | PCT     |       |          |                         |
| BL                   | WO 94/29948        | 12/94 | PCT     |       |          |                         |

Examiner: \_\_\_\_\_

Date Considered: \_\_\_\_\_

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609.  
Draw line through citation if not in conformance *and* not considered. Include copy of this form with next communication to applicants.

List of Patents and Publications For  
Applicant's Information Disclosure  
Statement

Serial No.: 10/\_\_\_\_,\_\_\_\_

Applicant(s): Edwin A. Suominen

Group: \_\_\_\_\_

Filed: August 25, 2003

## OTHER ART

Examiner

Initials

|    | <u>Author, Title, Date, Pertinent Pages, Etc.</u>   |
|----|---|
| BM | W. Baumberger, "A Single-Chip Image Rejecting Receiver for the 2.44 GHz Band Using Commercial GaAs-MESFET-Technology," in <u>IEEE Journal of Solid-State Circuits</u> , Vol. 29, No. 10, October 1994, pp. 1244-1249. |
| BN | T. Okanobu et al., "An Advanced Low Power Radio 1 Chip IC," in <u>IEEE Transactions on Consumer Electronics</u> , Vol. 40, No. 4, November 1994, pp. 842-851.   |
| BO | D. Yamazaki et al., "A Complete Single Chip AM Stereo/FM Stereo Radio IC," in <u>IEEE Transactions on Consumer Electronics</u> , Vol. 40, No. 3, August 1994, pp. 563-569.  |
| BP | R. van Gils et al., "2.5 Gbit/s CPFSK System with Low Central IF," in <u>Electronics Letters</u> , Vol. 30, No. 14, July 1994, pp. 1153-1154.   |
| BQ | A. Abidi, "Radio-Frequency Integrated Circuits for Portable Communications," in <u>IEEE 1994 Custom Integrated Circuits Conference</u> , May 1994, pp. 151-158.   |
| BR | G. Jacobsen, "Low IF Quadrature Optical High Sensitivity ASK Receivers," in <u>Electronics Letters</u> , Vol. 30, No. 13, June 1994, pp. 1026-1028.   |
| BS | C. Demeure, "A Portable HF Transceiver with Digital IF," in <u>Fifth International Conference on HF Radio Systems and Techniques</u> , July 1991, pp. 290-294.  |
| BT | D. Ehrhardt and T. Benkner, "Digital TV Receiver with a Low IF," in <u>IEEE Transactions on Consumer Electronics</u> , Vol. 39, No. 3, August 1993, pp. 331-339.  |
| BU | T. Okanobu, "Advanced Low Voltage Single Chip Radio IC," in <u>IEEE Transactions on Consumer Electronics</u> , Vol. 38, No. 3, August 1992, pp. 465-475.  |
| BV | B. Henderson and J. Cook, "Image-Reject and Single-Sideband Mixers," <u>WJ Tech-Note</u> , Vol. 12, No. 3, May/June 1985.   |
| BW | "Low Cost RF Modem," <u>IBM Technical Disclosure Bulletin</u> , September 1986, pp. 1511-1513.  |
| BX | J. Crols and M. Steyaert, "An Analog Integrated Polyphase Filter for a High Performance Low-IF Receiver," in <u>Proc. VLSI Circuits Symposium</u> , Kyoto, June 1995, pp. 87-88.                                      |
| BY | J. Crols and M. Steyaert, "Low-IF Topologies for High-Performance Analog Front Ends of Fully Integrated Receivers," in <u>IEEE Transactions on Circuits and Systems</u> , Vol. 45, No. 3, March 1998, pp. 269-282.    |

Examiner: \_\_\_\_\_

Date Considered: \_\_\_\_\_

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicants.

List of Patents and Publications For  
Applicant's Information Disclosure  
Statement

Serial No.: 10/\_\_\_\_

Applicant(s): Edwin A. Suominen

Group: \_\_\_\_\_

Filed: August 25, 2003

## OTHER ART

- BZ L. Larson (ed.), RF and Microwave Circuit Design for Wireless Communications, Artech House, Boston, pp. 52-55 (excerpt from Chapter by Asad A. Abidi, UCLA).
- CA A. Fernandez-Duran, et al., Alcatel, "Zero-IF Receiver Architecture for Multistandard Compatible Radio Systems," 46<sup>th</sup> IEEE Vehicular Technology Conference, May 1996, pp. 1052-1056.
- CB F. Oscarsson and A. Lindblad,; National Defence Research Establishment, Sweden, "Wideband HF Receiver With Digital Quadrature Splitting," 1993, pp. 1267-1271.
- CC PHILIPS SEMICONDUCTORS, Specification Sheet, "Image Rejecting Front-end for GSM Applications, UAA2072M."
- CD J. Paez-Borralló and F. Casaju Quiros, "Self Calibrating Low IF Digital Image Rejection Receiver For Mobile Communications" (believed presented at conference Sept. 10, 1996).
- CE F. Casaju Quiros and J. Paez Borralló; "A Low If Image Rejection Receiver For DECT, RACE Mobile Telecommunications Summit, Cascais, Portugal, Nov. 22-24, 1995, Vol. 1.
- CF J. Crols, et al., "A Single-Chip 900 MHz CMOS Receiver Front-End with a High Performance Low-IF Topology," IEEE Journal of Solid-State Circuits, Vol. 30, No. 12, December 1995, pp. 1483-1492.
- CG J. Wuorinen, "A Fully Integrated 900MHz CMOS Double Quadrature Downconverter," 1995 IEEE International Solid-State Circuits Conference, Digest of Technical Papers, Castine, ME, First Edition, February 1995, pp.137-138.
- CH P. Gray, et al., "Future Directions in Silicon ICs for RF Personal Communications," Proceeding of the IEEE 1995 Custom Integrated Circuits Conference, Berkeley, CA, May 1-4, 1995, pp. 83-90.
- CI R. Hawley, et al., "A 300 MHz Digital Double-Sideband to single-Sideband Converter in 1  $\mu$ m CMOS," IEEE Journal of Solid-State Circuits, Vol. 30, No. 1, January 1995.
- CJ J. Min, et al., "An All-CMOS Architecture for a Low-Power Frequency-Hopped 900 MHz Spread Spectrum Transceiver," IEEE 1994 Custom Intergrated Circuits Conference, Los Angeles, CA, pp. 379-382.

Examiner: \_\_\_\_\_

Date Considered: \_\_\_\_\_

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609.  
Draw line through citation if not in conformance *and* not considered. Include copy of this form with next communication to applicants.